Figure 1. Plasticizer Concentration vs. OTR @ 1.0 mil

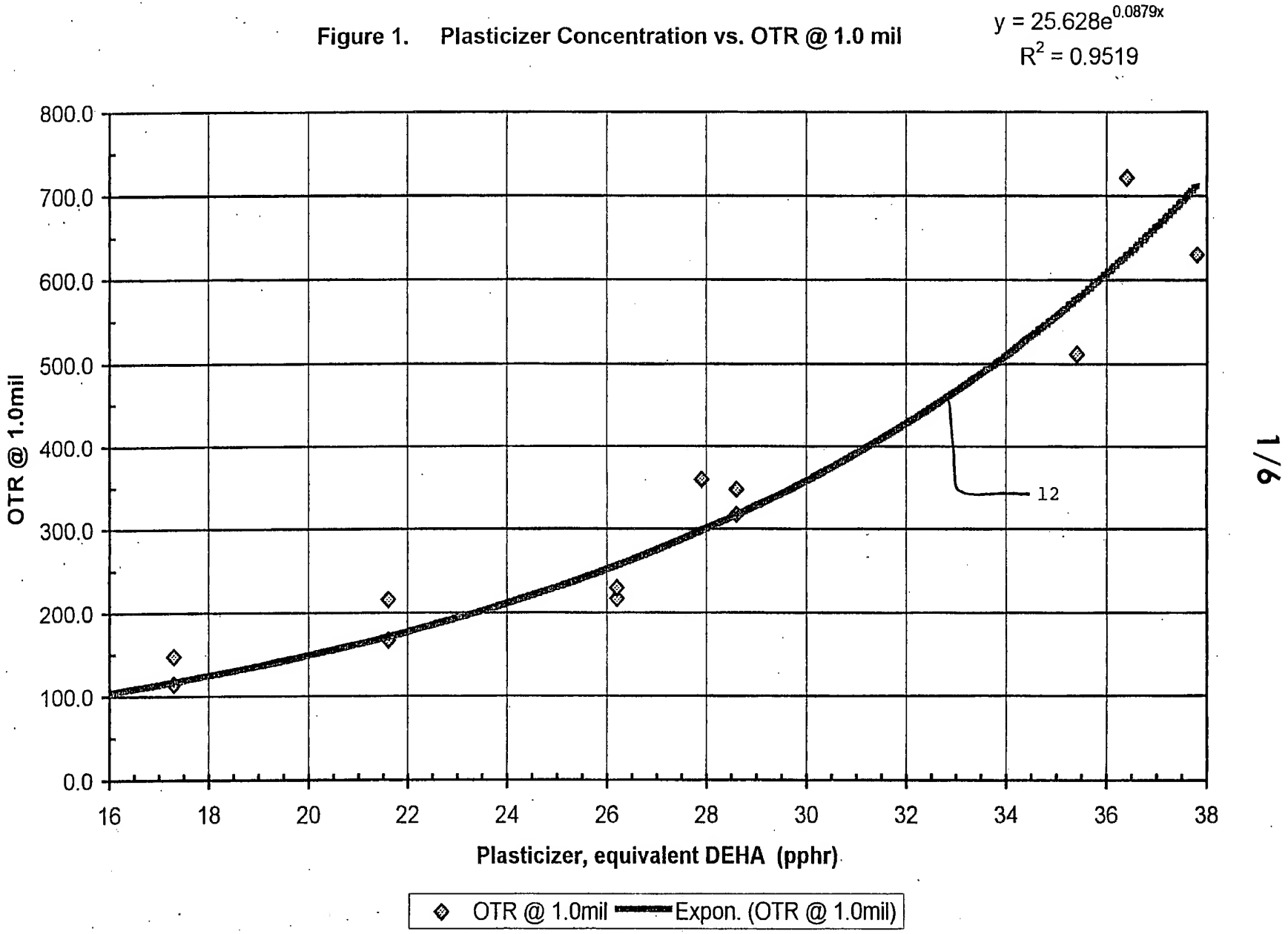

Figure 2. OTR @ 1.0mil vs. Plasticizer Concentration: Oriented and Nonoriented Film

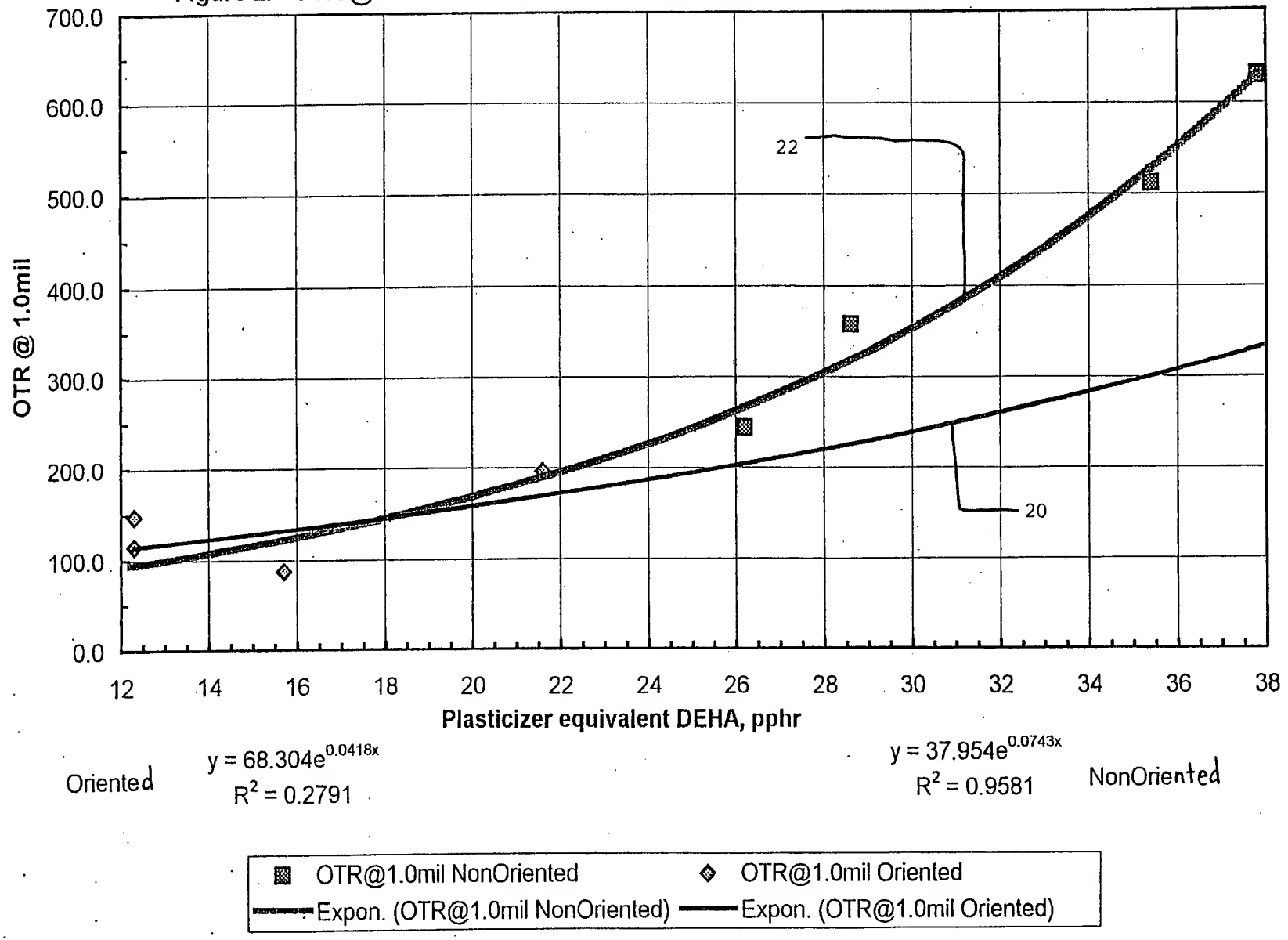

Figure 3. Basefilm Properties

Pliant Corp. Number	Nominal Gauge (mils)	Slip	Anti Block	Anti Fog	Surface Active Agents (pphr)	Plasticizers total (pphr)	Plasticizers equivalent DEHA (pphr)	OTR @ 1 mil	OTR	Sample Gauge (mils)	Molecular Orientation (shrink)
Vitafilm CBIX	0.96	yes	yes	yes	3.4	22	15.7	85.4	93.2	0.917	Oriented
Vitafilm CBIX	1.00	yes	yes	yes	3.4	22	15.7	88.2	84.5	1.044	Oriented
Vitafilm BIX XT	0.49	yes	yes	yes	3.1	24	17.3	114.6	211	0.543	Oriented
Vitafilm BIX 44XT	0.49	yes	yes	yes	3.1	24	17.3	147.9	241.3	0.613	Oriented
Vitafilm FTX	0.50	no	no	yes	1.7	29	21.6	167.1	320.2	0.522	Oriented
Vitafilm FTX	0.75	no	no	yes	1.7	29	21.6	216.2	264	0.819	Oriented
Omnifilm MX	0.80	yes	no	yes	3.4	40	36.4	721.0	887.9	0.812	Oriented
Vitafilm LGS	0.63	no	no	yes	1.7	32	26.2	217.4	221.7	0.981	NonOriented
Vitafilm LGS	1.00	no	no	yes	1.7	32	26.2	229.9	414.2	0.555	NonOriented
Vitafresh AV7050-1	1.80	yes	yes	yes	2.6	31	27.9	360.0	200.0	1.800	NonOriented
Vitafilm LG clear	1.00	no	no	yes	1.7	33	28.6	348.66	328	1.063	NonOriented
Vitafilm LG (AV7035-1)	1.15	no	no	yes	1.7	33	28.6	318.12	345.2	1.06	NonOriented
Omnifilm (AV7036)	0.45	no	no	yes	3.2	40	35.4	511.5	1100.0	0.465	NonOriented
Vitafilm PS	0.65	no	no	yes	1.7	42	37.8	630.2	959.3	0.657	NonOriented

Notes:
(mils): Gauge: Film Thickness
OTR: Oxygen Transmission Rate: Units: cc/100 square inches/24 hours
(pphr): Plasticizer Level: Units: parts per hundred (PVC) resin

Figure 4. Two-Layer Film Properties

Trial Number	Primary / Secondary Web	Basefilms	Basefilm Nominal Gauge (mils)	2-Ply Laminant Nominal Gauge (mils)	Laminant Sample Gauge (mils)	Laminant Sample OTR	Target OTR @ Laminant Nominal Gauge
A	Primary Secondary	Vitafilm CBIX Vitafilm FTX	1.00 0.75	1.75	2.00	64.7	61.3
B	Primary Secondary	Vitafilm FTX Vitafilm BIX XT	0.50 0.49	0.99	1.14	102.9	119.8
C	Primary Secondary	Vitafilm FTX Vitafilm LG clear	0.50 1.00	1.50	1.70	151.3	139.5
D	Primary Secondary	Vitafilm LG clear Vitafilm CBIX	1.00 1.00	2.00	2.20	75.2	63.6
E	Primary Secondary	Vitafilm LG clear Vitafilm LGS	1.00 1.00	2.00	2.00	138.4	135.3
F	Primary Secondary	Vitafilm LG clear Vitafilm LGS	1.00 0.625	1.63	1.78	156.7	165.0
G	Primary Secondary	Vitafilm LG clear Vitafilm PS	1.00 0.65	1.65	1.64	273.9	256.1
H	Primary Secondary	Vitafilm LG clear Omnifilm (AV7036)	1.00 0.45	1.45	1.53	246.6	251.6
I	Primary Secondary	Vitafilm CBIX Omnifilm (AV7036)	1.00 0.45	1.45	1.71	89.7	67.9
J	Primary Secondary	Vitafilm PS Omnifilm (AV7036)	0.65 0.45	1.10	1.17	470.6	491.9
K	Primary Secondary	Vitafilm LGS Vitafilm BIX XT	0.625 0.49	1.12	1.30	110.3	123.6

Notes:
Production Line was Uteco Solventless Laminator.
Both webs Corona treated (one side).
OTR: Oxygen Transmission Rate: units: cc/100 square inches/day
Laminant: Two-ply laminated structure.

Figure 5. Equivalent DEHA vs OTR at 1.0 mil

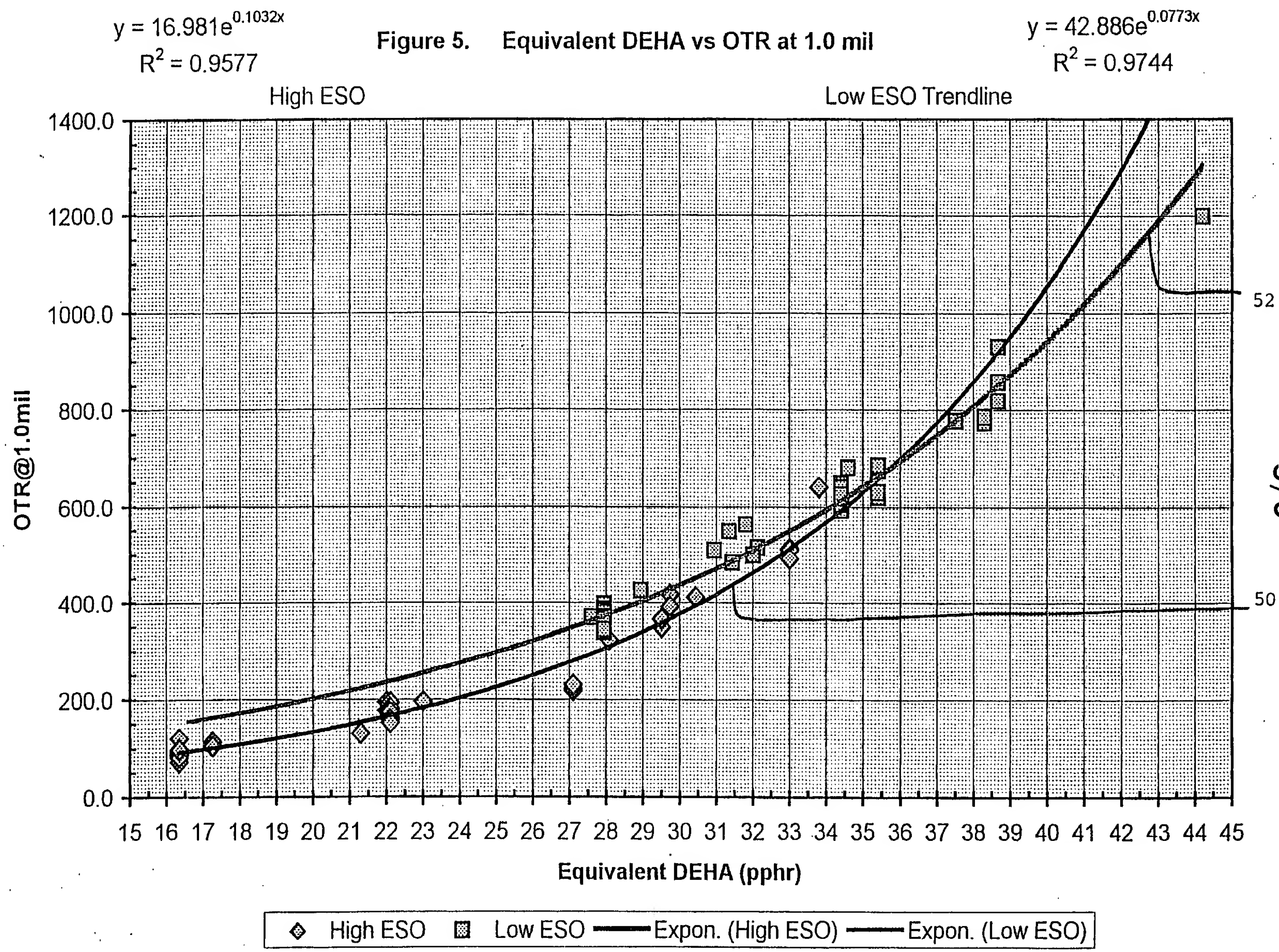

Figure 6. Sample Basefilm Formulations and OTRs

	Vitafilm CBIX	Vitafresh AV7050-1	Vitafilm PS
FUNCTION	pphr	pphr	pphr
PVC resin	100.0	100.0	100.0
Total Plasticizer	22.0	30.9	42.0
Total Process Aid	3.3	2.3	2.5
Total Surface Active Age	3.4	2.6	1.7
TOTAL	128.7	135.8	146.2
OTR @ 1.0 mil	88.2	360.0	630.2

Notes:
(mils): Gauge: Film Thickness
OTR: Oxygen Transmission Rate: Units: cc/100 square inches/24 hours
(pphr): Plasticizer Level: Units: parts per hundred (PVC) resin